

Preface

Artificial Intelligence (AI) techniques are increasingly being adopted in ever more application domains, including systems deployed in business-critical and safety-critical scenarios. However, to be really usable and effective for these applications, AI systems have to be designed with reliable, robust and verifiable methodologies. Since these have been the core mission of the *Formal Methods* (FM) community for decades, encouraging a fruitful interaction between AI and FM researchers is becoming every day more necessary.

The continued goal of this *Second Workshop on Artificial Intelligence and fOrmal VERification, Logic, Automata, and sYnthesis* (OVERLAY) is to establish a stable, long-term scientific forum on relevant topics connected to the relationships between Formal Methods and Artificial Intelligence. The workshop is sponsored by the OVERLAY research group (<https://overlay.uniud.it>), an ensemble of Italian researchers covering a diverse set of disciplines from both communities. The *2020 Bolzano Summer of Knowledge* (BOSK) event officially hosted the workshop. Since the event was co-hosted with the *27th International Symposium on Temporal Representation and Reasoning* (TIME 2020), this was a unique occasion to expose the topics of OVERLAY to the related communities. Due to the unfortunate COVID-19 situation, the events were held completely online. Despite this drawback, the virtual format allowed us to expand our international reach, both within the technical program and with respect to the actual attendance to the workshop.

In its full day of program, the workshop provided a stimulating environment where researchers from both areas discussed current opportunities and challenges. Sixteen papers were selected and presented during the workshop, confirming the interest from the first edition despite the uncertainties from a general slowdown in research activities caused by the previous lockdown months. The topics spanned from *logic* to *hybrid systems*, from *formal verification* to *automated planning*, from *model checking* to *machine learning*. The program was also enriched by the invited talk (shared with the TIME audience) by Clare Dixon (Manchester University, UK), «*Verifying Autonomous Robots: Challenges and Reflections*», which has been distilled into the extended abstract that starts this volume.

The research topics and the results collected in these proceedings illustrate the work of an active and multidisciplinary research community and confirm the growing interest for a forum where FM and AI researchers can find a common ground.

We would like to thank all those who made this initiative possible, starting from the authors of the contributed papers, the invited speaker Clare Dixon, and all the *program committee* members. We would also like to thank the BOSK and TIME organizers for hosting our workshop and sharing the invited speaker.

The workshop chairs,

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